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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,341	11/08/2000	Pieter Straasheijm	209127.0051/15U1	1896

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ONE COMMERCE SQUARE
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PHILADELPHIA, PA 19103-7013

EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 11/10/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,341

Applicant(s)

STRAASHEIJM, PIETER

Examiner

Erick Rekstad

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to because Fig. 3A shows the equation $(P0 + P1 + P2 + P3 + 2)/4$ while Fig. 3B has the equation $(P0 + P1 + P2 + P3 + .5)/4$, it is assumed that the equation for Fig. 3A is also suppose to be divided by 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because Fig. 4A and Fig. 4B fail to show the detail of the Fine Search on a Half-Scaled Frame and Full Frame as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.\

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the steps of the method for obtaining motion vectors must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 6 is objected to because of the following informalities: the claim states "inverse, discreet cosine" it should be "inverse discreet cosine". Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim 5 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The requirement "the first search is executed upside down" is unclear. The specifications do not state what "upside down" means. Is the search simply starting from the bottom right corner versus the upper left corner or is the block flipped upside down before searching?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, 7, 8, 9,10, and 11 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,576,72 to Kondo.

[claim 1]

Kondo describes a method of finding motion vectors for use in MPEG video encoding, the method comprising:

Generating from a full frame (Fig 9A), (i) a first scaled frame (Fig. 9B) having a reduced number of pixels as compared to the full frame and (ii) a second scaled frame (Fig. 9C) having a reduced number of pixels as compared to the first scaled frame;

Performing a first, full, best match search of the second scaled frame to identify rough motion vectors (Col. 8 Lines 27-57, Col. 9 Lines 50-51);

Performing a second best match search using the rough motion vectors identified by the first search, within a limited range in the x and y directions for each macroblock of the first scaled frame to identify intermediate motion vectors (Col.10 Lines 9-37, Fig. 10B); and

Performing a third best match search using the intermediate motion vectors identified by the second search within a limited range in the X and Y directions for each macroblock of the full frame to identify final motion vectors (Col.10 Lines 41-67, Fig. 10C).

[claim 2]

The method uses 64 macroblocks in the first search (third hierarchical stage) which meets the limits of 4 macroblocks (Col 9 Lines 58-67, Fig 10A).

[claim 6]

The scaled frames for the reference frame are produced after obtaining the reference frame from an inverse discrete cosine transform (Col 11 Lines 32-36, Fig 1 and 11A)

[claims 7 and 8]

Kondo describes the limited range of the second and third search is $-1, 0, +1$ pixels (blocks) (Col 10 Lines 8-67, Figs 10B-10E).

[claim 9]

Kondo suggests an optional addition to the motion vector detector that provides one half-pixel accuracy rather than one pixel accuracy. Kondo also suggests that the hierarchical stages consist of any number of stages greater than 2 (Col 16 Lines 10-14).

[claims 10 and 11]

Kondo describes the method as recited in claim 1 wherein the first scaled frame is a one-half scaled frame having one-fourth of the number of pixels as a full frame and the second scaled frame is a one-fourth scaled frame having one sixteenth of the number of pixels of a full frame (Col 8 Lines 13-16, Fig 9A-9C, Fig 10A-10C).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of US Patent 5,485,210 to Lim et al.

Kondo teaches the use of the method as required by claim 1. Kondo does not teach the use of identifying a scene change and obtaining a new reference frame. Lim teaches using the same block matching technique used for determining the motion

vector to also determine a scene change (Col 1 Lines 65-67, Col 2 Lines 1-16, Col 4 Lines 65-67, Col 5 Lines 1-13). The scene change detection causes a the original image to be sent rather than the residual. It is well known in the art that when an original image is sent the image is considered to be an I frame in the MPEG format. It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Lim's scene change detector in order to be able to use the same block matching technique for both finding motion vectors and determining scene changes.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of US Patent 6,430,222 to Okada.

Kondo teaches the use of the method as required by claim 1. Kondo does not teach the identification of a still frame which can be deleted. Okada teaches the method of skipping the coding of macroblocks that have little difference from that of the previous frame Col 8 Lines 40-50). It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Okada's method of skipping redundant frames in order to reduce the encoding of unnecessary video information.

Claim 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo.

[claim 5]

As best understood, it would be obvious to one skilled in the art to start the search from any corner of the search field, whether the top left, top right, bottom left, or bottom right, as a design choice.

[claim 12]

Kondo teaches the use of the method as required by claim 1. Kondo does not specifically point out that the full frame is an I frame. It is well known in the art that when encoding in MPEG format an I frame is used as a reference frame for encoding P and B frames. It would be obvious to one skilled in the art at the time of the invention that an I frame would be used as the full frame in order to produce the needed reference frames for encoding the P and B frames.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,219,383 to Park.

US Patent 6,549,575 to Butter et al.

US Patent 5,477,272 to Zhang et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2613

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

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